



‘Singled out’

A focused approach to Patient Blood Management

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Introducing UHCW



- One of the busiest teaching hospitals in the country
- 2 main hospital sites (UHCW/RSX)
- Located in the south of the region
- Very high blood user
- Trauma centre
- 3 MHPs per week (2014)
- Circa 6200 staff
- 1000 + Drs of all grades
- 2400 Registered Nurses / Midwives



Openness



Partnership



Improve



Learn



University Hospitals **NHS**
Coventry and Warwickshire
NHS Trust

Background

- 2011: NCA of Blood Transfusion in Medical Patients (Published 2013)
- Recommendations specific to Medicine:
 - *All NHS Trusts should establish a multidisciplinary PBM programme through the HTC or as a subgroup of the HTC*
 - *Education of all clinicians involved in the decision to transfuse blood components should be provided to enhance clinician awareness about good patient blood management including avoidance of blood wherever possible*
 - *Use of appropriate dose and thresholds for transfusion*
 - **Management of Anaemia**
 - *i.e. Avoid transfusion for managing anaemia if alternatives are available e.g. oral iron for iron deficiency anaemia, intravenous iron for functional iron deficiency*
- 2014: PBM (Launched July 2014)

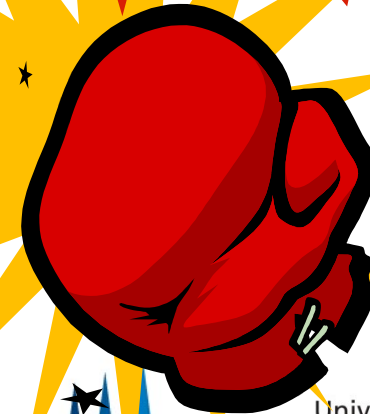
The need for change at UHCW...

Evidence of
Over transfusion
(NCA)

UHCW RBC usage
Was starting to
increase

T.A.C.O
Fatality

POW!!!

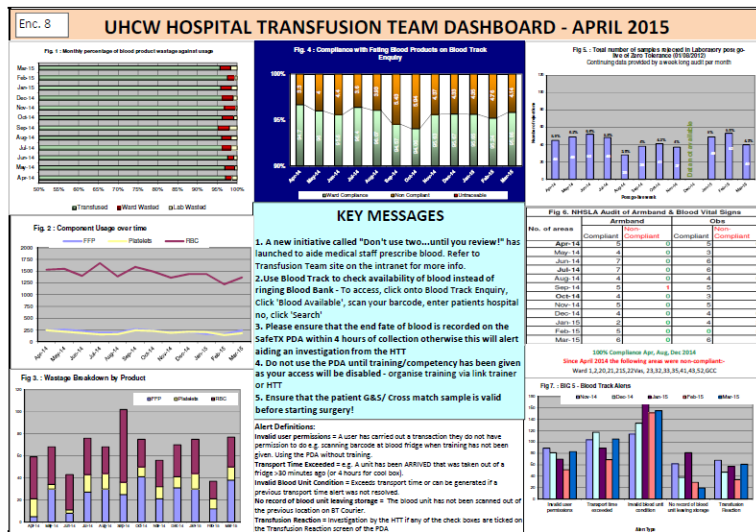


How did we do it?: Phase 1

- Conversations: Medical Director, Associate Medical Directors, and Clinical Directors
- Used HTC members
- Campaign ‘ Don’t use 2 until you review’
- Aligned campaign to Trust values
- Presented NCA and local data
- Provided education at speciality level
- ‘Grand Round’
- Engagement on wards (Used Blood Track)
- Adapted Transfusion Pathway (Added weight)
- Implemented Transfusion Algorithm and RBC Calculator

Making single unit transfusions work

- Implemented November 2014
- Trust wide
- However ultimate focus on specific wards
- Transfusion Dashboard



Getting Emergency Care Right

These are the weekly results for how wards are performing under the campaign Getting Emergency Care Right up to 01/02/2015.

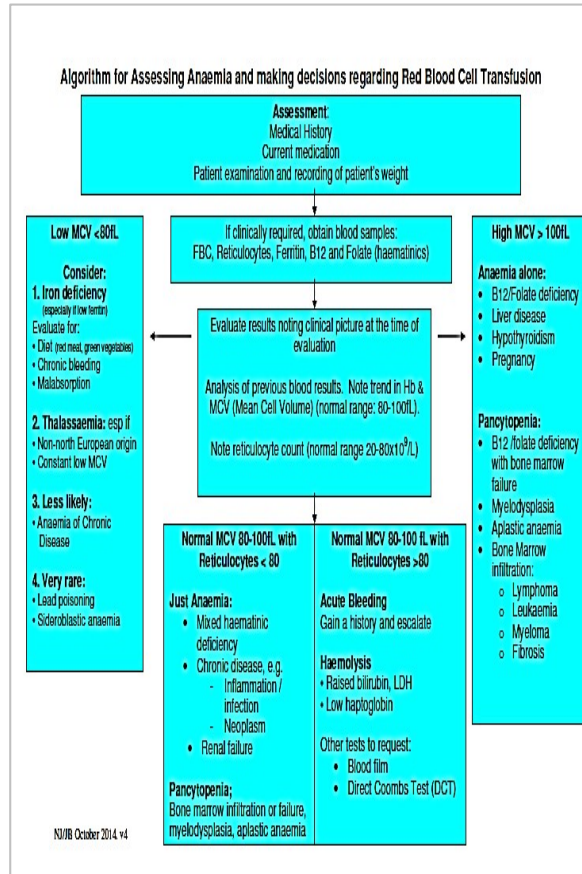
Discharge	In Flow (transfers from AMU1/Obs)
22ECU, 34, Cedar.	22SAU, 52, 11.
22a Surgery, 21M, 33 Short Stay.	22a Surgery, 22 ECU, 33 Short Stay.
TTO	Mortality
33, 3, 42.	Mulberry, 23, Hoskyn.
21M, 1, 33 Short Stay.	52, 1, 33 Short Stay.
Readmission	
Mulberry, 22a Surgery, 20.	

[To view more details about the different ward performance on individual metrics please see here.](#)

Our Tools

SECTION 2: PRESCRIPTION						
Name _____ Hoap. No. _____	Patient Location _____ Date of Prescription ____/____/____					
<small>Indications for Red Blood Cell Transfusion (Please tick appropriate indication)</small>						
INDICATION	TICK appropriate box					
1. Acute blood loss (especially if > 1.5L in adult)						
2. Symptomatic anaemia with no easily treatable cause (e.g. treat Fe deficiency with Fe), i.e. Hb < 80g/L (age < 75 years), or Hb < 90g/L (age > 75 years, or cardiac or respiratory disease)						
3. Long-term transfusion-dependent anaemia						
4. Radiotherapy patient (Hb < 100g/L)						
5. Chemotherapy patient (Hb < 90g/L)						
<small>Dose: Adults (75kg patient): Average 1 unit increases Hb 10g/L. Paediatrics: 10-15ml/kg increases Hb 20-22 g/L.</small> Give red blood cells 1 unit at a time to non-urgent settings. Reassess patient (symptoms, clinical exam and Hb level) before giving additional units.						
Pre-Transfusion Hb: _____ g/L (Date: _____) Patient's Weight (Kg): _____ (Date: _____) <small>(Use Red Blood Cell calculator)</small>						
+ History of transfusion reaction/allergy? YES/NO. If YES, Please specify _____ + Special Requirements (please circle): Irradiated blood / CMV negative / Blood warmer						
(ONCE ONLY & PRN MEDICATIONS) <small>Under NO circumstances should any drugs be added to blood or component transfusions</small>						
DRUG	DOSE	ROUTE	Drugs name / Issue number	Date	Time of day	Signature
Hydrocortisone	10mg	IV bolus				
Chlorpheniramine	10mg	IV bolus				
Fusidic acid (if required)	500mg clear and 500mg white	PO				
TRANSFUSION RDTA						
Product	Duration (usually 2 hours for RBC)	Prescribers name/signature (GMC Number/Disp Number)		Date	Given by/time	
Initial management of any reaction. (For further advice refer to 'Transfusion of blood and its components policy' on a library)						
BLEED REACTIONS <small>Blanching, petechiae, oozing, hypotension, tachycardia, hypoxia, Tachypnoea, chest pain, headache, urticaria, rash</small>	ACTION <small>Stop or slow transfusion Inform nurse to change who will inform doctor</small>	SEVERE REACTIONS <small>BP < 90/60, RR > 20, SpO2 < 90%, fever, chills, rigors, chest pain, back pain, hypotension, tachycardia, hypoxia, urticaria, rash, chest pain, vomiting, diarrhoea</small>	ACTION <small>Stop transfusion. Inform nurse to change who will inform doctor</small>			

Version 2. Produced by the Hospital Transfusion Team. Reviewed August 2014



RED BLOOD CELL (RBC) CALCULATOR

This is a guide to aide your decision-making when prescribing RBC. RBC are not the treatment of choice for iron deficiency or other haematinic deficiencies. The BCSH recommended adult therapeutic dose of RBC is 4ml/kg, which should lead to an approximately 10g/L rise in haemoglobin. The historic 'One unit of RBC to give a Hb rise of 10g/L' is for a 70-80 kg person. Patients who weigh less, or more, than 70-80kg are at risk of under- or over-transfusion. The latter may lead to Transfusion Associated Circulatory Overload (TACO). If you suspect TACO has occurred, report urgently to the Blood Bank who will investigate and report to 'Serious Hazards of Transfusion' (the national haemovigilance organisation).

The paediatric dose uses the same calculator; 4ml/kg for a 10g/L Hb rise. A suggested infusion rate of 5ml/kg/hr is advocated but will depend on the clinical situation.

The prescribed dose of RBC must be guided by the clinical situation. The target haemoglobin in non bleeding patients should be to alleviate symptoms and elevate to just above the transfusion trigger. **Remember: DON'T USE TWO, UNTIL YOU REVIEW!**

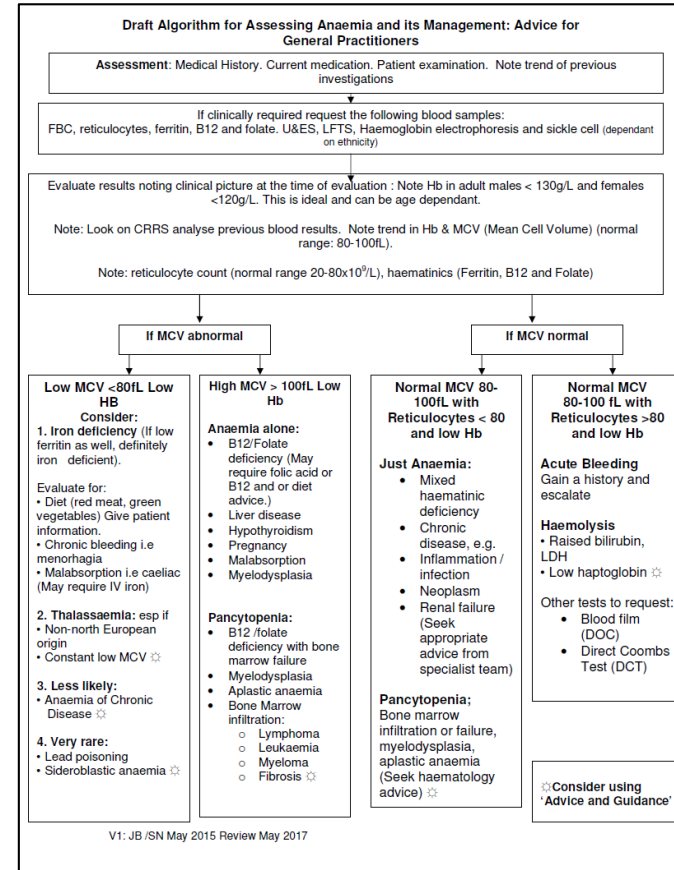
Indications, and transfusion 'triggers', for red cell transfusion	
1.	Acute blood loss (especially if > 1.5L in an adult).
2.	Symptomatic anaemia with no easily treatable cause e.g. Hb < 80g/L (age < 75yrs), or Hb < 90g/L (age > 75yrs, or cardiac/respiratory disease)
3.	Long-term transfusion-dependent anaemia – aim to keep Hb > 95-100g/L
4.	Radiotherapy patient (keep Hb > 100g/L)
5.	Chemotherapy patient (keep Hb > 90g/L)

Patient weight in Kg	RBC CALCULATOR		
	4ml/Kg	ml or units of RBC per 10g/L rise	ml or units of RBC per 20g/L rise
25kg	100ml	100ml	200ml
30kg	120ml	120ml	240ml
35kg	140ml	140ml	280ml
40kg	160ml	160ml	1
45kg	180ml	180ml	1
50kg	200ml	200ml	1
55kg	220ml	220ml	1
60kg	240ml	1	2
65kg	260ml	1	2
70kg	280ml	1	2
75kg	300ml	1	2
80kg	320ml	1	2
85kg	340ml	1	2
90kg	360ml	1.5	3
95kg	380ml	1.5	3
100kg	400ml	1.5	3

* If weight between thresholds, use the next bar up.
The volume of a RBC unit is variable: mean = 275ml. Clinical judgement is required.
This is only a guide to dosing of RBC transfusions. Ensure you complete a clinical assessment.
BCSH: Guidelines for administration of blood components, addendum 2012. Patient Blood Management 2014.

Phase 2

- ‘Birds eye view’
- PBM Practitioner (12 month secondment)
- Pre Op Algorithm and education
- GPAU (Follow the transfusion episode)
- GP Algorithm / Gateway
- GP education



The Role of the PBM Practitioner

- Change attitude towards RBC usage
- Create Leads/ Make contacts
- Patients advocate
- Audit and Re-audit
- Evidence based practice
- Time management
- Different focus



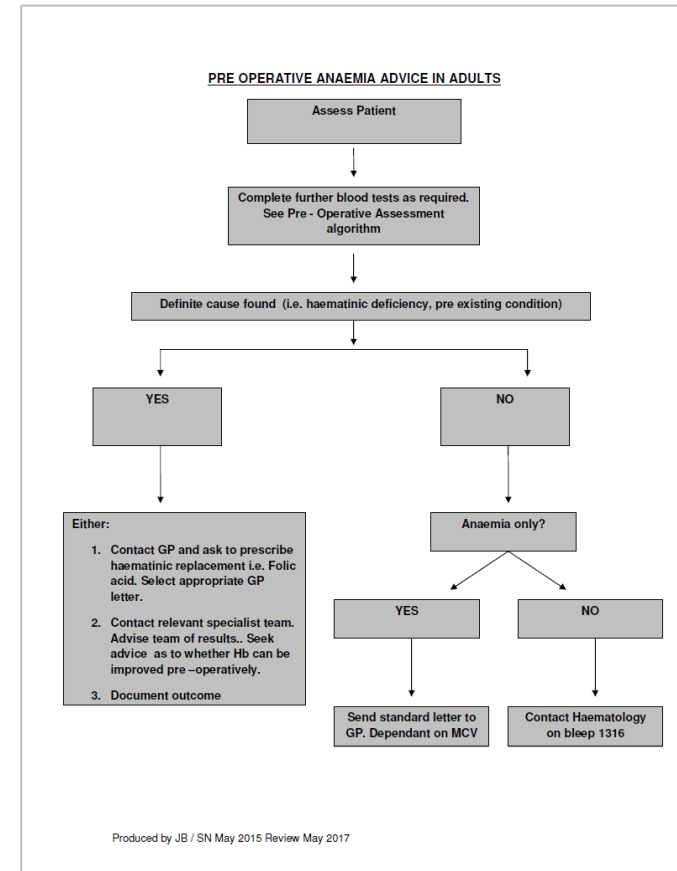
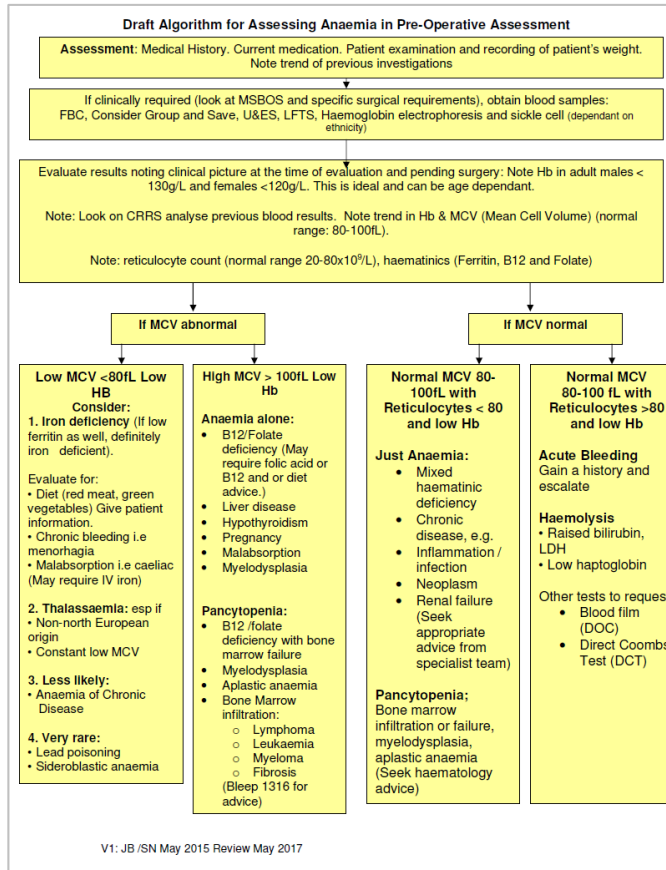
Producing Patient Information

- Anaemia: The Basics
- Diet and Anaemia: Eating to best manage anaemia
- How can I increase iron in my child's diet?
- IV Iron Therapy
- Erythropoietin: What is EPO?

THINK! EVERY SINGLE TIME



Pre Op Algorithm (UHCW)

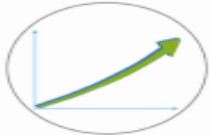


Trust Wide Performance



IMPROVE

- Nurse led injection service within Ambulatory Care
- Stop Before you Block re-launched by Anaesthetics
- Roll out of WOWs across the hospital to support timely TTO management
- Single Unit Transfusion project
- Piloting a GPSAU on Ward 22 from June 2015
- Centre of Excellence for Digital Pathology
- UHCW named NHS Clinical Research Site of the Year 2015
- Exploring city centre based Xray and Ultrasound



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Importance of Audit



- PBM Audit
- Request Audit
- GCC Iatrogenic Audit

Results so far

- RBC usage has decreased
- We produce a quarterly report
- Patient activity has increased by 4.9% (April 2014 – March 2015)
- Recent request audit demonstrates 1/5th of all transfusions are single unit
- Recent transfusion data demonstrates further reductions in RBC usage
- Our challenge is to maintain the momentum!
- We need to audit and research this change

RBC Usage Comparison to previous year:					
Financial Year	Q1	Q2	Q3	Q4	Total
2013/14	4556	4669	4505	4158	17888
2014/15	4484	4647	4295	4028	17454
Difference	-72	-22	-210	-130	-434
Cost (Saving)	-£8,773.20	-£2,680.70	-£25,588.50	-£15,840.50	-£52,882.90

Future Projects

TEG in Trauma

- Engagement
- Support
- Trial



Case Study 1

44 year old female. Mother of 4 children.

Presented with anergia and lethargy, no weight loss.

No PMH.

Pre Hb 70. MCV 59.9. Ferritin 3.

Weight 57 kg.

What would you do next?

What happened next....

2 units of blood prescribed.

Reviewed by HTT. Only one unit given.

TTO ferrous fumarate. Post Hb 82. MCV 65.1.



Case Study 2

84 year old Male,

Presented with fall/Fracture Neck of Femur

PMH: COPD, Falls, small bowel obstruction, polyneuropathy.

Hb76, MCV 99.6, Folate 9.5, B12 163

Ferritin 115, (3 months prior to admission)

Weight 56.8kg

What would you do?

What happened next.....

2 units of blood requested.

1 unit given

Post Hb 94



Case Study 3

38 year old active female, Mother of 2 young children.
Referred by GP due to low Hb
History: Menorrhagia
Symptoms: Tiredness
Hb 66 , MCV 62.5, Iron 2, Ferritin 3, folate 6.5, B12 295
No weight recorded

What would you do next?

What happened next...

Requested and prescribed x2 units of RBC

Patient then declined blood

Reviewed by HTT who discussed reasons for refusal.

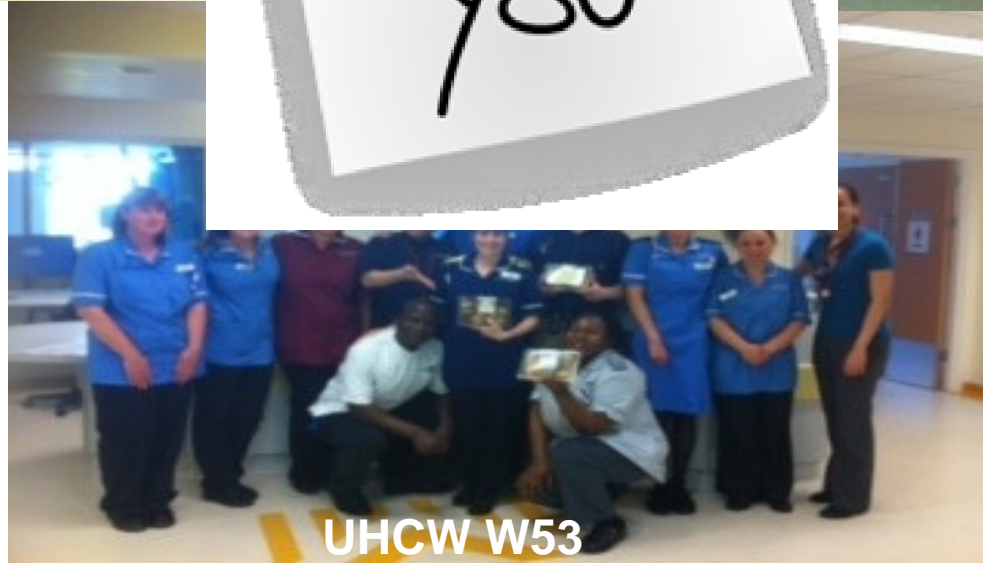
Patient discharged with oral iron supplements and given dietary advice. R/V by GP in 8/52.



UHCW W40



UHCW Oak ward



UHCW W53